NAVAIR

TECHNICAL MANUAL

INSTRUMENT MAINTENANCE PROCEDURE

SPECTRUM ANALYZER RF SECTION

HEWLETT PACKARD 8555A

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SECTION 1

INTRODUCTION AND DESCRIPTION

1.1 This maintenance procedure describes the calibration and adjustment of the Hewlett Packard Model 8555A Spectrum Analyzer RF Section. The instrument will be referred to herein as the TI (Test Instrument).

1.2 Section 4 of this procedure contains calibration of essential performance parameters only. Any malfunction noticed during calibration, whether specifically tested for or not, should be corrected. Section 5 of this procedure contains adjustments for out of tolerance conditions noted during calibration.

Table 1. Calibration Description

TI Characteristics	Performance Specification	Test Method
Vertical Amplitude (4.1)	Acc: ±0.15 division per 10 dB step	Signal is displayed on CRT and LOG REF LEVEL switch is switched 70 dB in 10 dB steps.
Scan Width (4.2)	Range: 200 MHz/div to to 2 kHz/div Acc: ≤10% between 2 points	Comb signal observed on display section CRT.
Frequency Response (4.3)	Range: (GHz) / Acc: (dB max) 0.1 to 2.05 ±1.0 1.50 to 3.55 ±1.0 2.07 to 6.15 ±1.0 2.60 to 4.65 ±1.0 4.11 to 6.15 ±1.0 4.13 to 10.25 ±1.5 6.17 to 10.25 ±1.5 6.19 to 14.35 ±2.0 8.23 to 14.35 ±2.0 10.29 to 18.00 ±2.5	Display section CRT observed for frequency response as input signal is tuned.

(Continued on page 2)

TI Characteristics	Performance Specification	Test Method
Sensitivity (4.4)	Range: (GHz) / Average Noise Level (dB max) 1.50 to 3.55 / -117 2.60 to 4.65 / -117 0.01 to 2.05 / -115 4.11 to 6.14 / -115 2.07 to 6.15 / -108 6.17 to 10.25 / -105 4.13 to 10.25 / -103 8.23 to 14.35 / -100 6.19 to 14.35 / -95 10.29 to 18.00 / -90	Average noise power level in a 10 kHz bandwidth is observed as TI frequency is tuned. A 10 dB correction must be made for equivalent 1 kHz bandwidth.
Noise Sidebands (4.5)	Level: >70 dB below CW signal, 30 kHz or more away from signal with 1 kHz IF bandwidth and 100 Hz video filter	CW signal is applied to TI and sidebands measured on display section CRT.
Residual Frequency Modulation (4.6)	Stabilized: ⩽ 100 Hz, peak to peak	TI is stabilized and detected FM is displayed and measured in time domain.
Tuning Dial (4.7)	Range: 100 to 2000 MHz Acc: ±15 MHz	Comb signal is observed on display section CRT.
Residual Response (4.8)	Range: 0.01 to 18 GHz Level: <-90 dBm	TI is tuned throughout frequency range and display section CRT observed.

SECTION 2

EQUIPMENT REQUIREMENTS

NOTE

Minimum use specifications are the principal parameters required for performance of the calibration, and are included to assist in the selection of alternate equipment, which may be used at the discretion of the using laboratory. Satisfactory performance of alternate items shall be verified prior to use. All applicable equipment must bear evidence of current calibration.

Item		Minimum Use Specifications	Recommended Test Equipment[1]	Use[2]
2.1	Probe	Divider: 1:1 Frequency: 1.3 MHz	Tektronix Model P6063A X1, X10 Passive Probe	A
2.2	Display Section	Compatible with TI and item 2.3	Hewlett-Packard Model 141T Spectrum Analyzer Display Section	C,A
2.3	IF Section	Compatible with TI and item 2.2	Hewlett-Packard Model 8552B Spectrum Analyzer IF Section	C,A
2.4	Adapter (5 required)	N male to BNC female	Amphenol Model UG-201A/U Adapter	C,A

(Continued on page 4)

[1]The instruments utilized in this procedure were selected from those known to be available at Department of Defense facilities, and the listing by make or model number carries no implication of preference, recommendation, or approval by the Department of Defense for use by other agencies. It is recognized that equivalent equipment produced by other manufacturers may be capable of equally satisfactory performance in the procedure.

[2]The instruments utilized in this procedure that are required for Calibration are identified with a "C". The instruments utilized for Adjustments are identified with an "A". Instruments required for both Calibration and Adjustment are identified as "C, A".

Item	Minimum Use Specifications	Recommended Test Equipment[1]	Use[2]
2.5 Generator	Frequency: 1,10,100 MHz markers Acc: ±0.1%	Hewlett Packard Model 8406A Frequency Comb Generator	C,A
2.6 Oscillator	Frequency: 50 kHz to 1.3 MHz Output: 0 to 3 V rms into 50 ohms	Hewlett-Packard Model S01-652A Test Oscillator	C
2.7 Cable	36 inch, RG-58C/U, BNC male to BNC male	Pomona Model BNC-C-36 Cable Assembly	C,A
2.8 Cable	36 inch, RG-213/U, N male to N male	Pomona Model 1658-S-36 Cable Assembly	C,A
2.9 Power Meter	Range: +10 to -18 dBm Acc: ±1% F.S.	Hewlett Packard Model 432A Power Meter	C,A
2.10 Thermistor Mount	Power: +10 to -18 dBm Frequency: 10 MHz to 18.0 GHz	Hewlett Packard Model 8478B Thermistor Mount	C,A
2.11 Attenuator	Attenuation: 10 dB Acc: ±0.25 dB Frequency: 30 MHz	Hewlett Packard Model 355D-001 Step Attenuator	A
2.12 Adapter	Tee, N female-male-female	Amphenol Model UG-107G/U Adapter	A
2.13 Attenuator	Frequency: DC - 18 GHz Attenuation: 10 dB Flatness: ±0.5 dB	Hewlett Packard Model 11582A Attenuator Set	A
2.14 Generator	Frequency: 10 MHz to 18.00 GHz Output: -10 to -18 dBm with external leveling	Hewlett Packard Model 8620A Sweep Generator with Hewlett Packard Model 8621B RF Drawer and Hewlett Packard Models 86260A, 86320A, 86330B, 86341B, 86342A, and 86350A RF Modules	C,A

(Continued on page 5)

Item	Minimum Use Specifications	Recommended Test Equipment[1]	Use[2]
2.15 Divider	Frequency: .1 to 18 GHz Balance between ports: ±0.5 dB	Weinschel Model 1506A Power Divider	C
2.16 Resistor	Resistance: 1.47 KΩ Acc: ±1%	Bench Stock	A
2.17 Filter	Cutoff Frequency: 2.2 GHz	Hewlett Packard Model 360C LP Filter	C,A
2.18 Resistor	Resistance: 21.5 KΩ Acc: ±1%	Bench Stock	A
2.19 Termination	50Ω, N Male	Weinschel Model M1403N Termination	C
2.20 Generator	Frequency: 30 MHz Output: -20 to -40 dBm	Hewlett Packard Model 8601A Generator/Sweeper	C
2.21 Termination	50Ω, BNC feedthru	Hewlett Packard Model 11048C Termination	C
2.22 Cable	IF/RF Unit Interconnection Extender Cable	Hewlett Packard Model 11592-60016 Cable Assembly p/o 11592A Service Kit	A
2.23 Cable	Display Section to Plug-In Extender Cable	Hewlett Packard Model 11592-60015 Cable Assembly p/o 11592A Service Kit	A
2.24 Multimeter	Voltage: 0 to 20 V dc Acc: ±0.015%	Fluke Model 8350A Digital Multimeter	A
2.25 Cable	36 inch, RG-58C/U, BNC male to red and black alligator clips	Pomona Model AL-C-BNC-36 Cable	A

(Continued on page 6)

Item	Minimum Use Specifications	Recommended Test Equipment[1]	Use[2]
2.26 Adapter	BNC female to double banana plug	Pomona Model 1269 Adapter	A
2.27 Probe	Divider: 10:1 Frequency: 1.3 MHz	Tektronix Model P6053B Passive Probe	A
2.28 Counter	Frequency: 1.9 MHz to 1.5 GHz Acc: ±0.0067%	Hewlett Packard Model 5245L Electronic Counter with Hewlett Packard Model 5254C Heterodyne Converter	A
2.29 Adapter	N female to BNC male	Amphenol Model UG-349A/U Adapter	A
2.30 Adapter	N female to SMC male	Americon Model 5080-2300 Adapter	A
2.31 Cable	Selectro female to Selectro male	Hewlett Packard Model 11592-6003 Cable Assembly p/o 11592A Service Kit	A
2.32 Cable	Selectro female to BNC male	Hewlett Packard Model 11592-60001 Cable Assembly p/o 11592A Service Kit	A
2.33 Cable	R&P female to BNC male	Hewlett Packard Model 11592-60013 Cable Assembly p/o 11592A Service Kit	A

(Continued on page 7)

Item	Minimum Use Specifications	Recommended Test Equipment[1]	Use[2]
2.34 Oscilloscope	Vertical response: 1.5 MHz	Tektronix Model 7704A Oscilloscope with Tektronix Model 7A26 Amplifier and Tektronix Model 7B53A Time Base	A
2.35 Attenuator	Attenuation: 5 dB Acc: ±0.25 dB Frequency: 30 MHz	Hewlett Packard Model 355C-001 Step Attenuator	A

SECTION 3

PRELIMINARY OPERATIONS

3.1 Verify that all power switches are off and connect all applicable equipment to the appropriate power source.

3.2 Before power switches are turned on, set all auxiliary equipment controls so that dangerous voltages will not be present on output terminals and to avoid damage to the equipment.

3.3 Energize equipment listed in Section 2, except display section (2.2), and allow sufficient time for equipment to warm-up and stabilize.

NOTE

TI and IF section (2.3) must be mechanically fitted together and electrically connected prior to insertion into display section (2.2).

3.4 Install TI and IF section in display section cavity.

3.5 Position display section controls as follows:

STORAGE-WRITING SPEED-STD switch	press (in)
TIME control	midrange
PERSISTANCE control	ccw
INTENSITY control	ccw
FOCUS control	midrange
LINE switch	off (down)
115V/230V switch (rear)	115V
EXT/IN switch (rear)	INT

3.6 Position IF section controls as follows:

MANUAL SCAN control	midrange
BASELINE CLIPPER control	ccw
VIDEO FILTER switch	10 kHz
SCAN MODE switch	INT
SCAN TRIGGER switch	AUTO
2 dB LOG/10 dB LOG/LINEAR switch	10 dB LOG
SCAN TIME PER DIVISION switch	5 MILLISECONDS
LOG REF LEVEL control	0

3.7 Position TI controls as follows:

Band switch	.01-2.05 GHz
FREQUENCY control	30 MHz
FINE TUNE control	centered
BANDWIDTH switch	100 kHz
ZERO/PER DIVISION/FULL switch	PER DIVISION

SCAN WIDTH switch ..... 10 MHz
TUNING STABILIZER switch ..... ON
Signal Identifier switch ..... OFF
INPUT ATTENUATION switch ..... 10 dB

3.8 Set display section LINE switch to ON. Power lamp lights.

3.9 Allow 30 minutes warmup.

SECTION 4

CALIBRATION PROCESS

NOTE

Unless otherwise specified, verify the results of each test and take corrective action whenever the test requirement is not met, before proceeding.

4.1 VERTICAL AMPLITUDE

4.1.1 Set IF section SCAN MODE switch to MAN.

4.1.2 Set IF section LOG REF LEVEL switch fully ccw.

4.1.3 Adjust display section INTENSITY, FOCUS, and ASTIG controls until CRT displays sharp, well defined, round dot. Maintain minimum intensity.

4.1.4 Set IF section SCAN MODE switch to INT.

4.1.5 Adjust display section INTENSITY control for CRT display optimum trace.

4.1.7 Adjust IF section VERTICAL POSITION adjustment to position display section CRT trace at bottom graticule line.

4.1.7 Connect IF section CAL OUTPUT connector to TI INPUT connector with cable (2.7) and adapter (2.4).

NOTE

It may be necessary to adjust TI FINE TUNE control to center display on display section CRT.

4.1.8 Set TI SCAN WIDTH switch to 10 kHz and BANDWIDTH switch to 10 kHz.

4.1.9 Adjust IF section LOG REF LEVEL control for display section CRT display trace at -70 dB graticule line.

4.1.10 Turn IF section LOG REF LEVEL switch 7 steps cw.

4.1.11 Adjust IF section VERTICAL GAIN adjustment for display section CRT display waveform peak at CRT LOG REF graticule line.

4.1.12 Adjust IF section LOG REF LEVEL switch 7 steps ccw, then cw. Display section CRT waveform amplitude changes between 0.85 and 1.15 divisions per 10 dB step.

4.1.13 Set IF section LOG REF LEVEL switch to -30 dBm and LINEAR SENSITIVITY control to 0.

4.1.14 Adjust TI AMPL CAL adjustment (front panel) for display section CRT display trace on LOG REF graticule line.

4.1.15 Set IF section 2 dB LOG/10 dB LOG/LINEAR switch to LINEAR and LINEAR SENSITIVITY switch to 1 mV/DIV.

4.1.16 Readjust TI AMPL CAL adjustment for display section CRT display trace on 7th graticule line.

4.1.17 Set IF section 2 dB LOG/10 dB LOG/LINEAR switch to 10 dB LOG and LOG REF LEVEL switch to -10 dBm.

4.2 SCAN WIDTH

4.2.1 Connect equipment as shown in Figure 1.

4.2.2 Position TI controls as follows:

FREQUENCY control ..... 1.4 GHz
BANDWIDTH switch ..... 300 kHz
SCAN WIDTH switch ..... 100 MHz
TUNING STABILIZER switch ..... ON
INPUT ATTENUATION switch ..... 0 dB

4.2.3 Position IF section controls as follows:

SCAN TIME PER DIVISION switch ..... 10 MILLISECONDS
LOG REF LEVEL switch ..... -20 dBm
VIDEO FILTER switch ..... OFF

4.2.4 Adjust generator (2.5) output controls for 100 MHz markers.

4.2.5 Adjust TI FREQUENCY and FINE TUNE controls to align marker at display section CRT left graticule line.

4.2.6 Display section CRT displays waveform as shown in Figure 2. Eighth comb signal occurs within ±0.8 divisions of +3 graticule line. If not, refer to Section 5.1 for adjustments.

4.2.7 Set TI SCAN WIDTH switch to 10 MHz and BANDWIDTH switch to 100 kHz.

4.2.8 Adjust generator (2.5) output controls for 10 MHz markers.

4.2.9 Repeat steps 4.2.5 and 4.2.6.

4.2.10 Set TI SCAN WIDTH switch to 1 MHz and BANDWIDTH switch to 10 kHz.

4.2.11 Set IF section SCAN TIME PER DIVISION switch to 20 MILLISECONDS.

4.2.12 Adjust generator (2.5) output controls for 1 MHz markers.

4.2.13 Repeat steps 4.2.5 and 4.2.6.

4.2.14 Set IF section SCAN TIME PER DIVISION switch to 10 MILLISECONDS.

4.2.15 Position TI controls as follows:

BANDWIDTH switch ..... 3 kHz
SCAN WIDTH switch ..... 50 kHz
TUNING STABILIZER switch ..... OFF
FREQUENCY control ..... 100 MHz

4.2.16 Connect oscillator (2.6) 50Ω output connector to generator (2.5) modulation connector with cable (2.7).

4.2.17 Adjust generator (2.5) output controls for 10 MHz markers.

4.2.18 Adjust oscillator output controls for 50 kHz, maximum output.

4.2.19 Adjust generator (2.5) and oscillator output amplitude controls for display section CRT display maximum amplitude.

4.2.20 Display section CRT displays comb signal every 50 kHz.

4.2.21 Adjust TI FINE TUNE control to align marker at display section CRT left graticule line.

4.2.22 Display section CRT displays waveform as shown in Figure 2. Eighth comb signal occurs within ±0.8 division of +3 graticule line. If not, refer to Section 5.1 for adjustments.

4.2.23 Set TI TUNING STABILIZER switch to ON.

4.2.24 Repeat steps 4.2.20 through 4.2.22.

4.2.25 Disconnect equipment.

4.3 FREQUENCY RESPONSE

4.3.1 Connect equipment as shown in Figure 3.

4.3.2 Position TI controls as follows:

FREQUENCY control ..... fully ccw
INPUT ATTENUATION switch ..... 10 dB
Signal Identifier switch ..... OFF
ZERO/PER DIVISION/FULL switch ..... FULL

4.3.3 Position IF section controls as follows:

SCAN TIME PER DIVISION switch ..... 10 MILLISECONDS
2 dB LOG/10 dB LOG/LINEAR switch ..... 10 dB LOG
LOG REF LEVEL switch ..... 0 dBm
SCAN TRIGGER switch ..... LINE

4.3.4 Adjust generator (2.14) output controls for 100 MHz CW and power meter (2.9) indication of -3 dBm.

-13

NOTE

Use power meter -0 dBm range.

-10

4.3.5 Adjust IF section LOG REF LEVEL switch and LINEAR SENSITIVITY control for display section CRT signal display of -10 dBm.

NOTE

Image frequency response will be encountered on some frequency bands. Take care not to confuse the image response with the cw signal. (Image response will move faster than signal.)

4.3.6 Set TI band switch to settings listed in Table 2 and perform the following:

4.3.6.1 Adjust generator (2.14) frequency control thru frequency range listed.

NOTE

When changing generator (2.14) band switch or rf module perform the following:

(a) Note power meter indication at highest frequency before change.

(b) Change band switch or rf module.

(c) Adjust generator (2.14) for frequency in step (a).

(d) Adjust generator (2.14) output level for power meter indication noted in step (a).

4.3.6.2 Adjust generator (2.14) output control to maintain display section CRT signal at -10 dBm graticule line.

4.3.6.3 Power meter indicates within specified limits. If not, refer to Section 5.2 for adjustments.

Table 2. Frequency Response

TI Band Switch Setting	Generator (2.14) Frequency Range (GHz)	Power Meter Indication (dBm)
0.01 to 2.05	0.1 to 2.05	-2.0 to -4.0
1.50 to 3.55	1.50 to 3.55	-2.0 to -4.0
2.07 to 6.15	2.07 to 6.15	-2.0 to -4.0
2.60 to 4.65	2.60 to 4.65	-2.0 to -4.0
4.11 to 6.15	4.11 to 6.15	-2.0 to -4.0
4.13 to 10.25	4.13 to 10.25	-1.5 to -4.5
6.17 to 10.25	6.17 to 10.25	-1.5 to -4.5
6.19 to 14.35	6.19 to 14.35	-1.0 to -5.0
8.23 to 14.35	8.23 to 14.35	-1.0 to -5.0
10.29 to 18.00	10.29 to 18.00	-0.5 to -5.5

Add -10 to all values

4.3.7 Disconnect equipment.

4.4 SENSITIVITY

4.4.1 Connect termination (2.19) to TI INPUT connector.

4.4.2 Position TI controls as follows:

Band switch ..... 1.50 to 3.55
FREQUENCY control ..... 1.5 GHz
BANDWIDTH switch ..... 10 kHz
ZERO/PER DIVISION/FULL switch ..... ZERO
INPUT ATTENUATION switch ..... 0 dB

4.4.3 Position IF section controls as follows:

SCAN TIME PER DIVISION switch ..... 20 MILLISECONDS
2 dB LOG/10 dB LOG/LINEAR switch ..... 10 dB LOG
LOG REF LEVEL switch ..... -50 dBm
LOG REF LEVEL control 0
VIDEO FILTER switch ..... 100 Hz
SCAN TRIGGER switch ..... AUTO

4.4.4 Set TI band switch to settings listed in Table 3 and perform the following:

4.4.4.1 Turn TI FREQUENCY control thru frequency range.

4.4.4.2 Display section CRT displays average noise level within specified limits. If not, refer to Section 5.2 for adjustments.

NOTE

Disregard LO feedthru signal.

Table 3. Sensitivity

TI Band Switch Setting	Average Noise Level (dBm max) (10 kHz bandwidth)
1.50 to 3.55	-107
2.60 to 4.65	-107
0.01 to 2.05	-105
4.11 to 6.15	-105
2.07 to 6.15	-98
6.17 to 10.25	-95
4.13 to 10.25	-93
8.23 to 14.35	-90
6.19 to 14.35	-85
10.29 to 18.00	-80

4.4.5 Remove termination (2.19).

4.5 NOISE SIDEBANDS

4.5.1 Connect generator (2.20) to TI INPUT connector with cable (2.7), termination (2.21), and adapter (2.4).

4.5.2 Position TI controls as follows:

Band switch ..... .01 - 2.05 GHz
FREQUENCY control ..... 30 MHz
TUNING STABILIZER switch ..... ON
BANDWIDTH switch ..... 100 kHz
ZERO/PER DIVISION/FULL switch ..... PER DIVISION
SCAN WIDTH switch ..... 5 MHz
INPUT ATTENUATION switch ..... 10 dB

4.5.3 Position IF section controls as follows:

LOG REF LEVEL switch ..... -20 dBm
VIDEO FILTER switch ..... OFF
SCAN TRIGGER switch ..... LINE
SCAN TIME PER DIVISION switch ..... 10 MILLISECONDS

4.5.4 Adjust generator (2.20) output controls for 30 MHz, -20 dBm output.

4.5.5 Adjust TI FREQUENCY control to center display on display section CRT.

4.5.6 Set TI SCAN WIDTH switch to 10 kHz and BANDWIDTH switch to 1 kHz.

4.5.7 Adjust generator (2.20) output controls for display section CRT signal amplitude peak at top graticule line.

NOTE

Simultaneously set TI and IF section switches one step at a time and turn TI FREQUENCY control to maintain display centered on display section CRT.

4.5.8 Set IF section SCAN TIME PER DIVISION switch to .2 SECONDS and VIDEO FILTER switch to 100 Hz.

4.5.9 Display section CRT displays noise level 3 divisions or greater away from 30 MHz signal is greater than 70 dB below CW signal level. If not, refer to Section 5.2 for adjustments.

4.5.10 Disconnect equipment.

4.6 RESIDUAL FREQUENCY MODULATION

4.6.1 Connect equipment as shown in Figure 4.

4.6.2 Position TI controls as follows:

Band switch	.01 - 2.05 GHz
FREQUENCY control	100 MHz
BANDWIDTH switch	30 kHz
ZERO/PER DIVISION/FULL switch	PER DIVISION
SCAN WIDTH switch	1 MHz
INPUT ATTENUATION switch	10 dB
TUNING STABILIZER switch	ON

4.6.3 Position IF section controls as follows:

SCAN TIME PER DIVISION switch	50 MILLISECONDS
LOG REF LEVEL switch	0 dBm
VIDEO FILTER switch	10 kHz
SCAN TRIGGER switch	AUTO

4.6.4 Adjust generator (2.5) output controls for 100 MHz markers.

4.6.5 Adjust TI FREQUENCY control for centered display section CRT trace.

NOTE

Adjust TI FREQUENCY control to maintain display at CRT center graticule line.

4.6.6 Set TI SCAN WIDTH switch to 2 kHz and BANDWIDTH switch to 1 kHz.

4.6.7 Set IF section 2 dB LOG/10 dB LOG/LINEAR switch to LINEAR.

4.6.8 Adjust generator (2.5) amplitude control and TI LOG REF LEVEL switch for display section CRT display of eight divisions.

4.6.9 Adjust TI FINE TUNE control until display section CRT displays upward slope of signal intersects CENTER FREQUENCY graticule line one division from top. See Figure 5.

4.6.10 Record where slope of display section CRT display intersects LIN LOG dB horizontal graticule line.

4.6.11 Multiply horizontal displacement recorded in step 4.6.10 by TI SCAN WIDTH switch setting to convert horizontal displacement into Hz.

EXAMPLE: (2 kHz SCAN WIDTH) x (0.2 div) = 400 Hz

where: 2 kHz = setting of the TI SCAN WIDTH PER DIVISION switch

0.2 div = horizontal displacement (from step 4.6.10)

4.6.12 Calculate demodulation sensitivity by dividing horizontal displacement in Hz by vertical displacement in divisions. See Figure 5.

EXAMPLE:

$$\frac{400 \text{ Hz}}{3 \text{ div}} = 133 \text{ Hz/div}$$

4.6.13 Set TI ZERO/PER DIVISION/FULL switch to ZERO.

4.6.14 Adjust TI FINE TUNE control for display section CRT display trace between -10 and -40 graticule line.

4.6.15 Measure display section CRT trace peak-to-peak deviation, and multiply by demodulation sensitivity calculated in step 4.6.12.

EXAMPLE:

0.5 div peak-to-peak signal x 133 Hz/div =
66.5 Hz residual FM.

4.6.16 Stabilized residual FM calculated in step 4.6.15 is less than 100 Hz peak-to-peak. If not, refer to Section 5.3 for adjustments.

4.7 TUNING DIAL

4.7.1 Position TI controls as follows:

BANDWIDTH switch ..... 30 kHz
ZERO/PER DIVISION/FULL switch ..... PER DIVISION
SCAN WIDTH switch ..... 10 MHz
INPUT ATTENUATION switch ..... 20 dB

4.7.2 Position IF section controls as follows:

SCAN TIME PER DIVISION switch ..... 20 MILLISECONDS
2 dB LOG/10 dB LOG/LINEAR switch ..... 10 dB LOG
LOG REF LEVEL switch ..... -20 dBm
VIDEO FILTER switch ..... OFF
SCAN TRIGGER switch ..... LINE

4.7.3 Adjust generator (2.5) output controls for 100 MHz.

4.7.4 Set TI FREQUENCY control to 100 MHz.

4.7.5 Display section CRT displays waveform within 1.5 divisions of center graticule line. If not, refer to Section 5.1 for adjustments.

4.7.6 Turn TI FREQUENCY control to settings listed in Table 4. Display section CRT displays waveform within 1.5 divisions of center graticule line. If not, refer to Section 5.1 for adjustments.

Table 4. Tuning Dial

TI FREQUENCY Control Setting (MHz)
200
400
600
800
1000
1200
1400
1600
1800
2000

4.7.7 Disconnect equipment.

4.8 RESIDUAL RESPONSE

4.8.1 Connect termination (2.19) to TI INPUT connector.

4.8.2 Position TI controls as follows:

FREQUENCY control ..... fully ccw
ZERO/PER DIVISION/FULL ..... FULL
INPUT ATTENUATION switch ..... 0 dB

4.8.3 Position IF section controls as follows:

SCAN TIME PER DIVISION switch ..... 10 SECONDS
LOG REF LEVEL switch ..... -60 dBm
LOG REF LEVEL control 0
VIDEO FILTER switch ..... 100 Hz
SCAN TRIGGER switch ..... AUTO

4.8.4 Observe display section CRT over full frequency scan.

4.8.5 Display section CRT displays response below -90 dBm. If not, refer to Section 5.2 for adjustments.

4.9 TI SHUTDOWN

4.9.1 De-energize and disconnect equipment.

4.9.2 Re-install protective covers on TI.

4.9.3 Complete calibration decal and affix to TI.

SECTION 5

ADJUSTMENT PROCESS

NOTE

The adjustment steps in this section are included only to correc for an out-of-tolerance condition noted during the calibration process. Remove and replace TI protective covers as required.

5.1 SCAN AND FREQUENCY

5.1.1 Set display section LINE switch to off (down). Power lamp extinguishes.

5.1.2 Remove TI and IF sections from display section.

5.1.3 Disconnect TI from IF section.

5.1.4 Connect equipment as shown in Figure 6.

5.1.5 Remove termination (p/o display section) from display section AUXILIARY A connector and connect to TI P4 connector (rear).

5.1.6 Connect multimeter (2.24) to TI +20V test point (figure 7) and ground with cable (2.25) and adapter (2.26).

5.1.7 Set display section LINE switch to ON. Power lamp lights.

5.1.8 Adjust TI VOLT ADJ adjustment (figure 7) for multimeter indication between 19.99 and 20.01 V dc.

5.1.9 Disconnect multimeter from TI +20V test point and connect to TI +10V test point (figure 7).

5.1.10 Multimeter indicates between 9.98 and 10.02. If not, readjust TI VOLT ADJ adjustment (figure 7).

NOTE

It may be necessary to compromise TI VOLT ADJ adjustment setting for +20 and +10V indications to be in tolerance.

5.1.11 Disconnect multimeter from TI +10V test point and connect to TI A4 TP2 (figure 7).

5.1.12 Position TI controls as follows:

ZERO/PER DIVISION/FULL switch ..... ZERO
SCAN WIDTH switch ..... 2 MHz
BANDWIDTH switch ..... 100 kHz
INPUT ATTENUATION switch ..... 10 dB
TUNING STABILIZER switch ..... ON

5.1.13 Set IF section SCAN TIME PER DIVISION switch to 10 MILLISECONDS.

5.1.14 Connect equipment as shown in Figure 4.

5.1.15 Adjust generator (2.5) output controls for 100 MHz.

NOTE

Approach all TI FREQUENCY settings clockwise. Avoid parallax error when reading TI dial frequency.

5.1.16 Set TI FREQUENCY control to 2.0 GHz.

5.1.17 Adjust TI -10V adjustment (figure 7) for multimeter indication between -9.873 and -9.883 V dc.

5.1.18 Set TI ZERO/PER DIVISION/FULL switch to FULL.

5.1.19 Adjust TI 4.10 GHz adjustment (figure 7) for 20th comb marker (2.0 GHz) aligned with display section CRT +5 graticule line.

5.1.20 Set TI ZERO/PER DIVISION/FULL switch to ZERO and FREQUENCY control to 0 GHz.

5.1.21 Adjust TI -5V adjustment (figure 7) for multimeter indication between -4.995 and -5.005 V dc.

5.1.22 Set TI ZERO/PER DIVISION/FULL switch to FULL momentarily, then PER DIVISION.

5.1.23 Adjust TI 2.05 GHz adjustment (figure 7) to position LO feedthrough signal at display section CRT center graticule line.

5.1.24 Set display section LINE switch to off (down). Power lamp extinguishes.

5.1.25 Disconnect equipment.

5.1.26 Disconnect termination (p/o display section) from TI P4 connector (rear) and connect to display section AUXILIARY A connector.

NOTE

TI and IF section must be mechanically fitted together and electrically connected prior to insertion into display section.

5.1.27 Install TI and IF section into display section.

5.1.28 Set display section LINE switch to ON. Power lamp lights.

5.1.29 Continue procedure starting with step 4.2.1.

5.2 RESPONSE

5.2.1 Set display section LINE switch to off (down). Power lamp extinguishes.

5.2.2 Remove TI and IF sections from display section.

5.2.3 Disconnect TI from IF section.

5.2.4 Connect equipment as shown in Figure 8, connection A.

5.2.5 Remove termination (p/o display section) from display section AUXILIARY A connector and connect to TI P4 connector (rear).

5.2.6 Set display section LINE switch to ON. Power lamp lights.

NOTE

If power has been off for an extended period, allow 2 hours warm up before proceeding.

5.2.7 Set TI band switch to .01 - 2.05 GHz and ZERO/PER DIVISION/FULL switch to PER DIVISION.

5.2.8 Adjust TI ADJ 3 adjustment (figure 7) for counter (2.28) indication between 1,499.9 to 1,500.1 MHz.

5.2.9 Connect equipment as shown in Figure 8, connection B.

5.2.10 Adjust TI 1.5 GHz PWR adjustment (figure 7) for power meter indication between +7 and +11 dBm.

5.2.11 Repeat steps 5.2.4 and 5.2.8.

5.2.12 Disconnect equipment.

5.2.13 Disconnect TI cable W13 at K3J1 (figure 7) and cable W8 at K1J1 (figure 7).

5.2.14 Connect equipment as shown in Figure 9.

5.2.15 Adjust TI ADJ 4 adjustment (figure 7) for power meter minimum indication.

5.2.16 Disconnect equipment.

5.2.17 Connect TI cable W13 to K3J1 and cable W8 to K1J1.

5.2.18 Position TI controls as follows:

Band switch	.01 - 2.05 GHz
FREQUENCY control	30 MHz
BANDWIDTH switch	300 kHz
SCAN WIDTH switch	1 MHz
INPUT ATTENUATION switch	10 dB

5.2.19 Position IF section controls as follows:

SCAN TIME PER DIVISION switch	1 SECOND
LINEAR SENSITIVITY switch	1 mV/DIV
2 dB LOG/10 dB LOG/LINEAR switch	LINEAR
SCAN TRIGGER switch	AUTO

5.2.20 Connect IF section CAL OUTPUT connector to TI INPUT connector with cable (2.7) and adapter (2.4).

5.2.21 Adjust IF section LINEAR SENSITIVITY control to peak signal at display section CRT LIN 7 graticule line.

5.2.22 Adjust TI ADJ 1 and ADJ 2 adjustments (figure 7) for signal maximum amplitude on display section CRT.

5.2.23 Readjust IF section LINEAR SENSITIVITY control to peak signal at display section CRT LIN 7 graticule line.

5.2.24 Turn TI ADJ 1 adjustment (figure 7) clockwise to reduce signal display amplitude 0.2 divisions.

5.2.25 Turn TI ADJ 2 adjustment (figure 7) clockwise to reduce signal display amplitude 0.2 divisions.

5.2.26 Disconnect cable (2.7) and adapter (2.4).

5.2.27 Disconnect termination (p/o display section) from TI P4 connector (rear).

5.2.28 Connect TI P4 connector (rear) pin A2 to counter with cable (2.33).

5.2.29 Adjust TI FREQ adjustment (figure 10) for counter indication between 499.95 and 500.05 MHz.

5.2.30 Set TI signal identifier switch to ON.

5.2.31 Set TI BANDWIDTH switch and IF section VIDEO FILTER switch as necessary to extinguish TI DISPLAY UNCAL lamp.

5.2.32 Record counter indication of frequency shift down from center frequency.

NOTE

Frequency will alternate between 498 and 500 MHz. Record indication at 498 MHz. If necessary, set IF section SCAN TIME PER DIVISION switch to slower scan time.

5.2.33 Set TI band switch to 4.11 - 6.15 GHz.

5.2.34 Record counter indication of frequency shift up from center frequency.

NOTE

Frequency will alternate between 500 and 502 MHz. Record indication at 502 MHz.

5.2.35 Adjust TI FREQ LIN adjustment (figure 10) for downward frequency shift recorded in step 5.2.32 equal to upward frequency shift recorded in step 5.2.34 (symmetrical shift about 500 MHz center frequency).

5.2.36 Set signal identifier switch to OFF.

5.2.37 Repeat steps 5.2.29, 5.2.30, and 5.2.32 thru 5.2.35 for equal frequency shift about 500.0 MHz center.

5.2.38 Adjust TI FREQ SENS adjustment (figure 10) for frequency shift between 1.9 and 2.1 MHz with band switch set to .01 - 2.05 GHz and 4.11 - 6.15 GHz.

5.2.39 Connect IF section CAL OUTPUT connector to TI INPUT connector with cable (2.7) and adapter (2.4).

5.2.40 Position TI controls as follows:

Band switch	.01 - 2.05 GHz
FREQUENCY control	30 MHz
BANDWIDTH switch	100 kHz
SCAN WIDTH switch	100 kHz
TUNING STABILIZER switch	ON
Signal Identifier switch	OFF

5.2.41 Set IF section SCAN TIME PER DIVISION switch to 10 MILLISECONDS.

5.2.42 Turn TI FREQUENCY control to position signal display at display section CENTER FREQUENCY graticule line.

5.2.43 Adjust TI C5, C6, C7, and 50 MHz FILTER adjustments (figure 10) for display section CRT maximum signal amplitude.

5.2.44 Adjustments in step 5.2.43 interact. Repeat as necessary.

5.2.45 Set display section LINE switch to off (down).

5.2.46 Connect termination (p/o display section) to TI P4 connector (rear).

5.2.47 Disconnect TI cable W18 from TI A2J2 (figure 7).

5.2.48 Connect equipment as shown in Figure 11.

5.2.49 Remove TI A6 Band Buffer board (figure 7).

5.2.50 Unsolder one end of TI A16 board resistors A16 R11 and A16 R13 (figure 12).

NOTE

A16 board is mounted on A6 board (figure 12).

5.2.51 Install A6 board into TI.

5.2.52 Set display section LINE switch to ON. Power lamp lights.

5.2.53 Set attenuator (2.11) to 10 dB and attenuator (2.35) to 5 dB.

5.2.54 Connect generator (2.20) to TI INPUT connector with cable (2.7) and adapter (2.4).

5.2.55 Adjust generator (2.20) controls for 30 MHz and -15 dBm output.

5.2.56 Set TI SCAN WIDTH switch to .5 MHz and INPUT ATTENUATION switch to 30 dB.

5.2.57 Set IF section SCAN TIME PER DIVISION switch to 10 MILLISECONDS and LINEAR SENSITIVITY control fully ccw.

5.2.58 Turn TI FREQUENCY control to center signal on display section CRT.

5.2.59 Set TI band switch to 4.13 - 10.25 GHz.

5.2.60 Turn IF section LINEAR SENSITIVITY control to peak signal at display section CRT LOG REF graticule line.

NOTE

Adjust TI AMPL CAL adjustment, if necessary.

5.2.61 Adjust TI C2 INPUT MATCH and C12 OUTPUT MATCH adjustments (figure 7) for signal maximum amplitude on display section CRT.

5.2.62 Turn IF section LINEAR SENSITIVITY control to peak signal at display section CRT LOG REF graticule line.

5.2.63 Set TI band switch to .01 - 2.05 GHz.

5.2.64 Set attenuators (2.35) and (2.11) to 0 dB.

5.2.65 Adjust TI R22 adjustment (figure 7) for signal peak at display section CRT LOG REF graticule line.

5.2.66 Set TI INPUT ATTENUATION switch to 10 dB.

5.2.67 Set IF section LINEAR SENSITIVITY switch to 10 mV/DIV and LINEAR SENSITIVITY control to .5.

5.2.68 Set display section LINE switch to off (down). Power lamp extinguishes.

5.2.69 Remove TI A6 board (figure 7).

5.2.70 Solder end of TI resistor A16 R11 (figure 12) to board.

5.2.71 Insert board A6 into TI.

5.2.72 Set display section LINE switch to ON. Power lamp lights.

5.2.73 Adjust TI R4 n = 1 LOW 2.05 GHZ I.F. adjustment (figure 7) for display section CRT signal amplitude of 37 mV.

5.2.74 Adjust TI C2 INPUT MATCH adjustment (figure 7) for signal maximum amplitude on display section CRT.

NOTE

Readjust TI R4 n = 1 LOW 2.05 GHz I.F. adjustment (figure 7) for display amplitude of 37 mV, if necessary.

5.2.75 Set display section LINE switch to off (down). Power lamp extinguishes.

5.2.76 Remove TI A6 board (figure 7).

5.2.77 Unsolder end of TI resistor A16 R11 (figure 12) from board.

5.2.78 Insert board A6 into TI.

5.2.79 Set display section LINE switch to ON. Power lamp lights.

5.2.80 Set attenuator (2.35) to 5 dB and attenuator (2.11) to 10 dB.

5.2.81 Turn IF section LINEAR SENSITIVITY control to peak signal at display section CRT LOG REF graticule line.

NOTE

Do not change setting of LINEAR SENSITIVITY control until after step 5.2.86.

5.2.82 Set display section LINE switch to off (down). Power lamp extinguishes.

5.2.83 Solder resistors (2.16) and (2.18) together in series and connect between TI A2 board -12.6V and VAR GAIN terminals (figure 13). See Figure 7 for location of A2.

5.2.84 Set display section LINE switch to ON. Power lamp lights.

5.2.85 Set attenuators (2.35) and (2.11) to 0 dB.

5.2.86 Adjust TI A2C8 adjustment (figure 13) for display peak at display section CRT LOG REF graticule line.

5.2.87 Set display section LINE switch to off (down). Power lamp extinguishes.

5.2.88 Disconnect resistors (2.16) and (2.18) from TI A2 board.

5.2.89 Remove TI A6 board (figure 7).

5.2.90 Solder TI A16 board resistors A16 R11 and A16 R13 (figure 12) to board.

5.2.91 Install A6 board into TI.

5.2.92 Set display section LINE switch to ON. Power lamp lights.

5.2.93 Set IF section LINEAR SENSITIVITY switch to 10 mV/DIV and LINEAR SENSITIVITY control to .5.

5.2.94 Turn TI AMPL CAL adjustment to center of range.

5.2.95 Adjust TI R4 n = 1 LOW 2.05 GHz I.F. adjustment (figure 7) for display section CRT signal amplitude of 37 mV.

5.2.96 Adjust TI C2 INPUT MATCH adjustment (figure 7) for signal maximum amplitude on display section CRT.

NOTE

Readjust TI R4 n = 1 LOW 2.05 GHz I.F. adjustment (figure 7) for display amplitude of 37 mV, if necessary.

5.2.97 Disconnect attenuators (2.35) and (2.11).

5.2.98 Connect TI W18 to TI A2J2 (figure 7).

5.2.99 Adjust TI C12 OUTPUT MATCH adjustment (figure 7) for signal maximum amplitude on display section CRT.

5.2.100 Adjust TI AMPL CAL adjustment for display section CRT sign amplitude of 40 mV.

5.2.101 Disconnect generator (2.20), cable (2.7) and adapter (2.4

5.2.102 Connect equipment as shown in Figure 14.

5.2.103 Adjust generator (2.14) controls for 1.6 GHz CW and power meter indication of -5 dBm (-15 dBm at TI INPUT connector).

5.2.104 Turn TI FREQUENCY control to center signal on display section CRT.

5.2.105 Adjust generator (2.14) output level control for signal peak at display section CRT LOG REF graticule line.

5.2.106 Set TI BAND switch to 1.50 - 3.55 GHz.

5.2.107 Turn TI FREQUENCY control to center signal on display section CRT.

5.2.108 Adjust TI R25 n = 1 LOW 550 MHz I.F. adjustment (figure 7) for signal peak at display section CRT LOG REF graticule line.

5.2.109 Set display section LINE switch to off (down). Power lamp extinguishes.

5.2.110 Disconnect equipment.

5.2.111 Disconnect termination from TI P4 connector (rear) and connect to display section AUXILIARY A connector.

NOTE

TI and IF section must be mechanically fitted together and electrically connected prior to insertion into display section.

5.2.112 Install TI and IF section into display section.

5.2.113 Set display section LINE switch to ON. Power lamp lights.

5.2.114 Continue procedure starting with step 4.3.1.

5.3 RESIDUAL FREQUENCY MODULATION

5.3.1 Set display section LINE switch to off (down). Power lamp extinguishes.

5.3.2 Remove TI and IF sections from display section.

5.3.3 Disconnect TI from IF section.

5.3.4 Connect equipment as shown in Figure 15.

5.3.5 Set display section LINE switch to ON. Power lamp lights.

5.3.6 Position TI controls as follows:

SCAN WIDTH switch ..... 100 kHz
FREQUENCY control ..... 10 MHz
BANDWIDTH switch ..... 10 kHz
TUNING STABILIZER ch ..... OFF

5.3.7 Position IF section controls as follows:

SCAN TIME PER DIVISION switch ..... 5 MILLISECONDS
LOG REF LEVEL switch ..... -10 dBm
2 dB LOG/10 dB LOG/LINEAR switch ..... 10 dB LOG
VIDEO FILTER switch ..... OFF
SCAN TRIGGER switch ..... LINE

5.3.8 Connect multimeter to TI A5 TP4 (figure 16) with cable (2.25) and adapter (2.26).

5.3.9 Adjust TI FINE TUNE control for multimeter indication between -0.1 and 0.1 V dc.

5.3.10 Disconnect cable (2.25) from TI A5 TP4 and connect to TI A5 TP9 (figure 12).

5.3.11 Adjust TI FET OFSET adjustment (figure 16) for multimeter indication between -0.1 and 0.1 V dc.

5.3.12 Set TI ZERO/PER DIVISION/FULL switch to PER DIVISION.

5.3.13 Adjust generator (2.5) controls for 1 MHz.

5.3.14 Adjust TI TICKLER SWEEP adjustment (figure 16) to align comb signals on display section CRT -5 and +5 graticule lines.

NOTE

Turn TI FINE TUNE control as necessary to align first marker on -5 graticule line.

5.3.15 Set TI TUNING STABILIZER switch to ON.

5.3.16 Adjust TI VCXO SWEEP adjustment (figure 16) to align comb signals on display section CRT -5 and +5 graticule lines.

5.3.17 Set TI TUNING STABILIZER switch to OFF.

5.3.18 Repeat steps 5.3.14 thru 5.3.16 until no further improvement is noted.

5.3.19 Disconnect generator (2.5) and multimeter.

5.3.20 Set TI ZERO/PER DIVISION/FULL switch to ZERO and FREQUENCY control to 0 MHz.

5.3.21 Turn TI LINEARITY adjustment (figure 17) to center of range.

5.3.22 Connect oscillator 50 ohm output connector to TI A14A2 TP3 (figure 17) with probe (2.1).

5.3.23 Adjust oscillator output controls for 1.3 MHz, 1 V rms output.

5.3.24 Connect oscilloscope (2.34) vertical input connector to TI A14A2 TP1 (figure 17) with probe (2.27).

5.3.25 Adjust TI 1.3 MHz NULL adjustment (figure 17) for oscilloscope display minimum amplitude.

5.3.26 Disconnect probe (2.1) from TI A14A2 TP3.

5.3.27 Disconnect probe (2.27) from TI A14A2 TP1 and connect to TI A14A2 TP2 (figure 17).

5.3.28 Adjust TI 1 MHz PEAK adjustment (figure 17) for oscilloscope display maximum amplitude.

5.3.29 Set display section LINE switch to off (down). Power lamp extinguishes.

5.3.30 Disconnect equipment.

NOTE

TI and IF section must be mechanically fitted together and electrically connected prior to insertion into display section.

5.3.31 Install TI and IF section into display section.

5.3.32 Set display section LINE switch to ON. Power lamp lights.

5.3.33 Continue procedure starting with step 4.6.1.

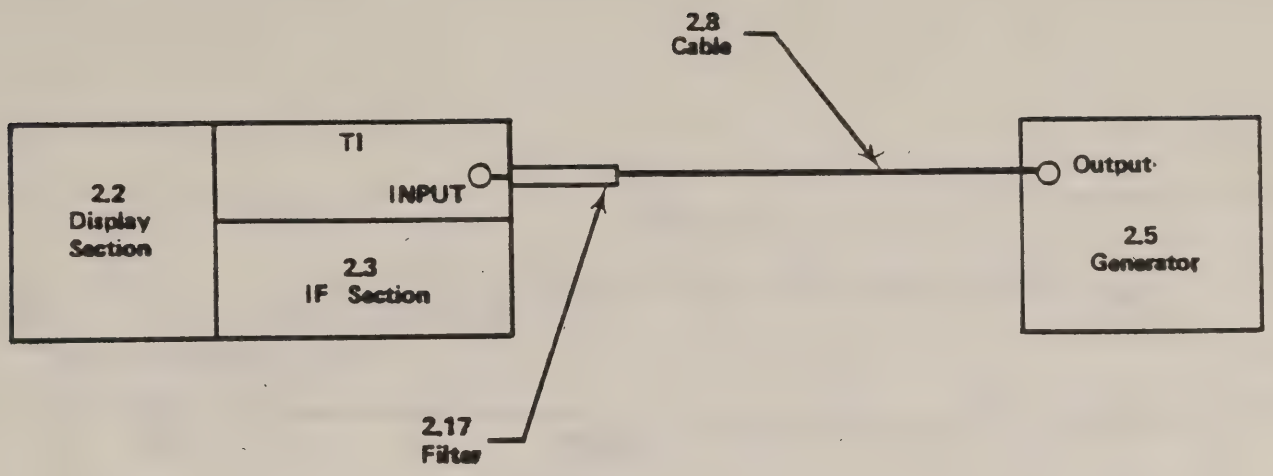

Figure 1. Scan Width Setup

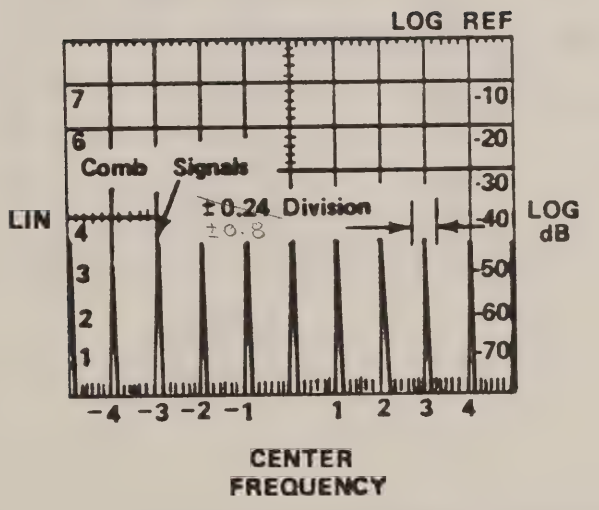

Figure 2. Scan Width Waveform

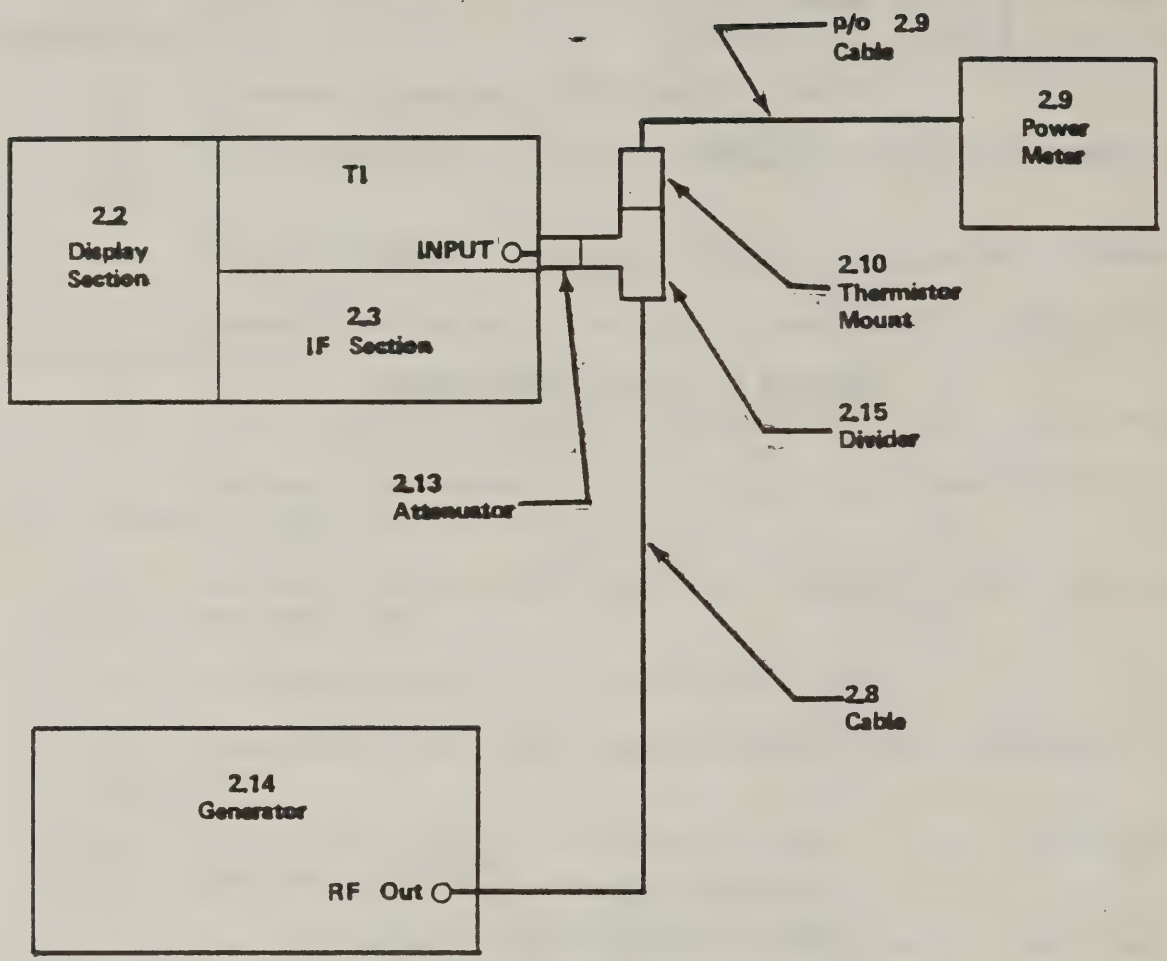

Figure 3. Frequency Response Setup

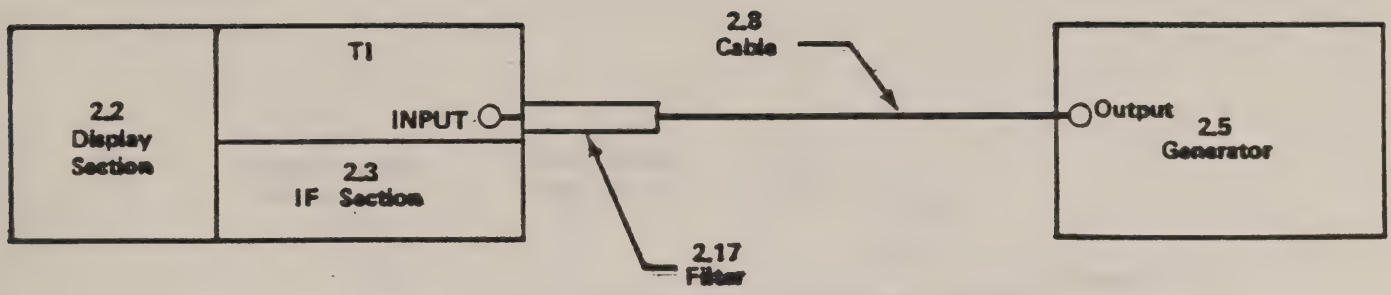

Figure 4. Residual Frequency Modulation Setup

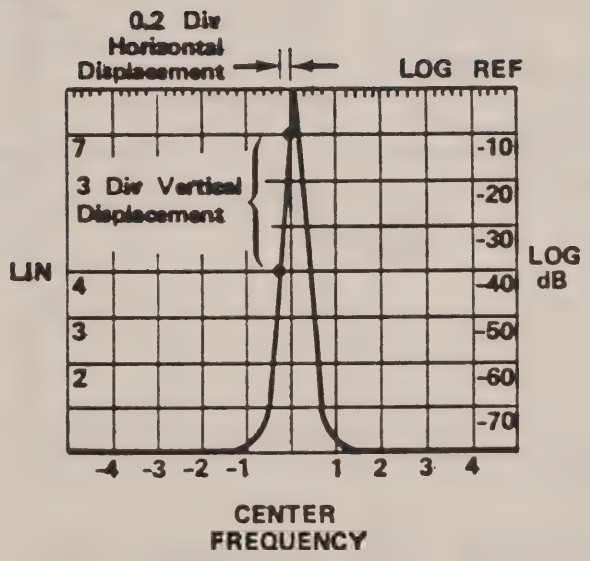

Figure 5. Demodulation Sensitivity Measurement Waveform

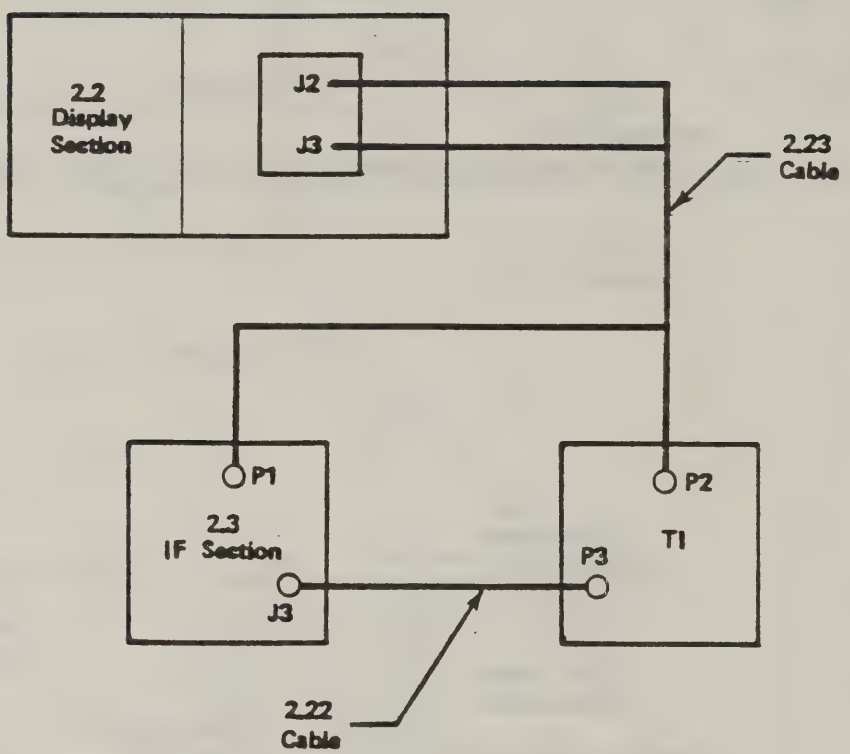

Figure 6. Scan Adjustment Setup

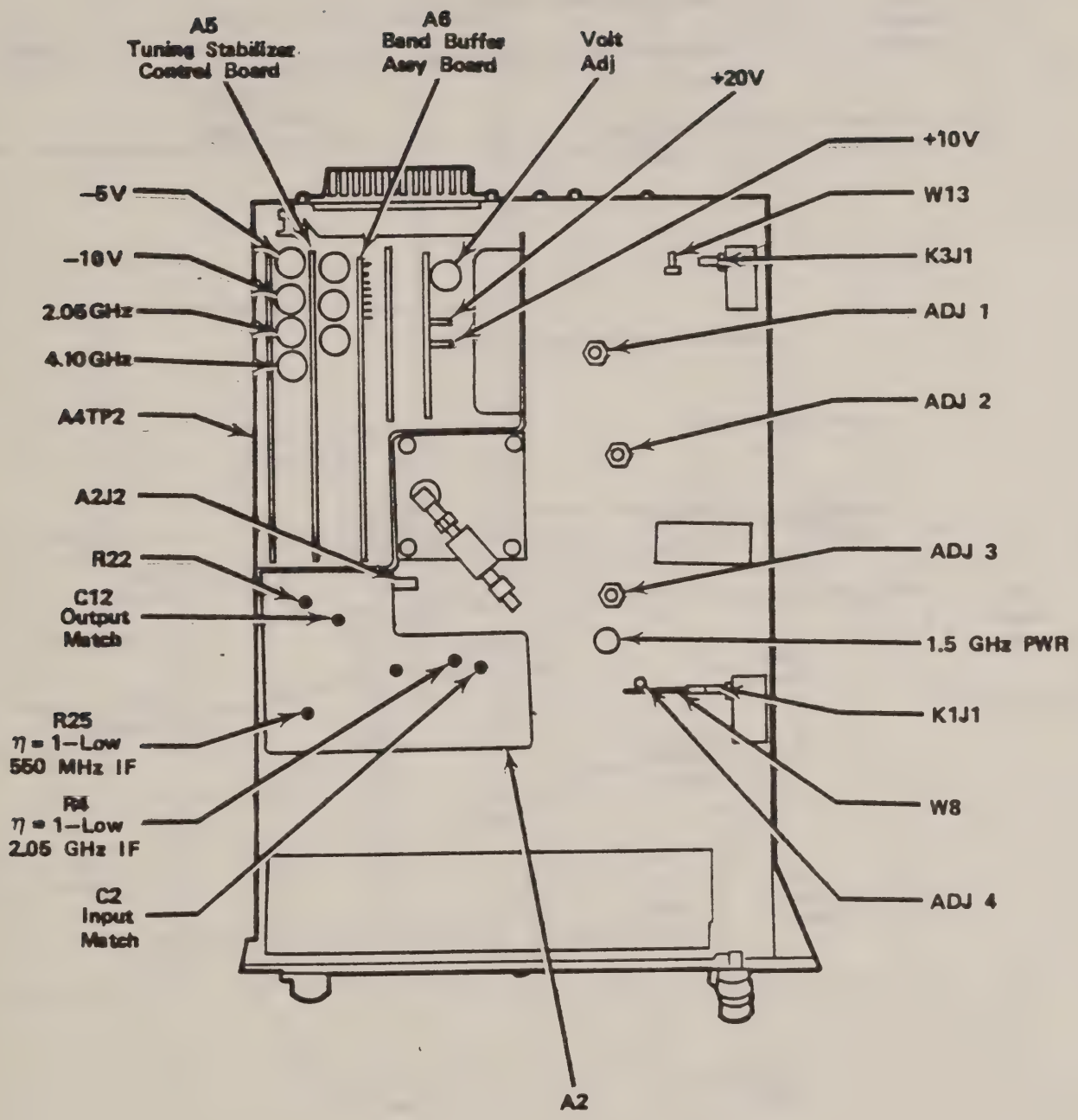

Figure 7. Adjustment Locations (Top View)

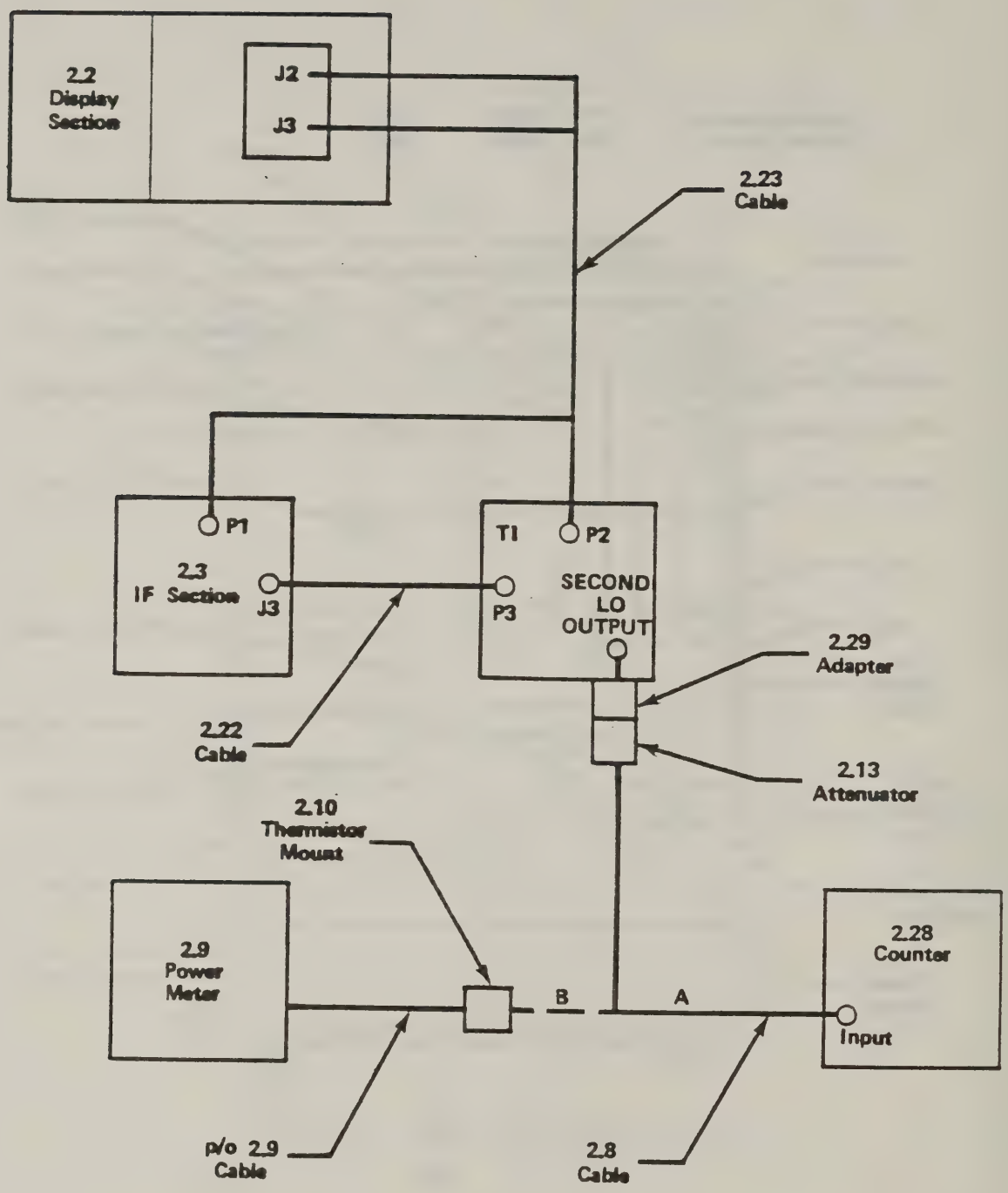

Figure 8. 2nd LO Setup

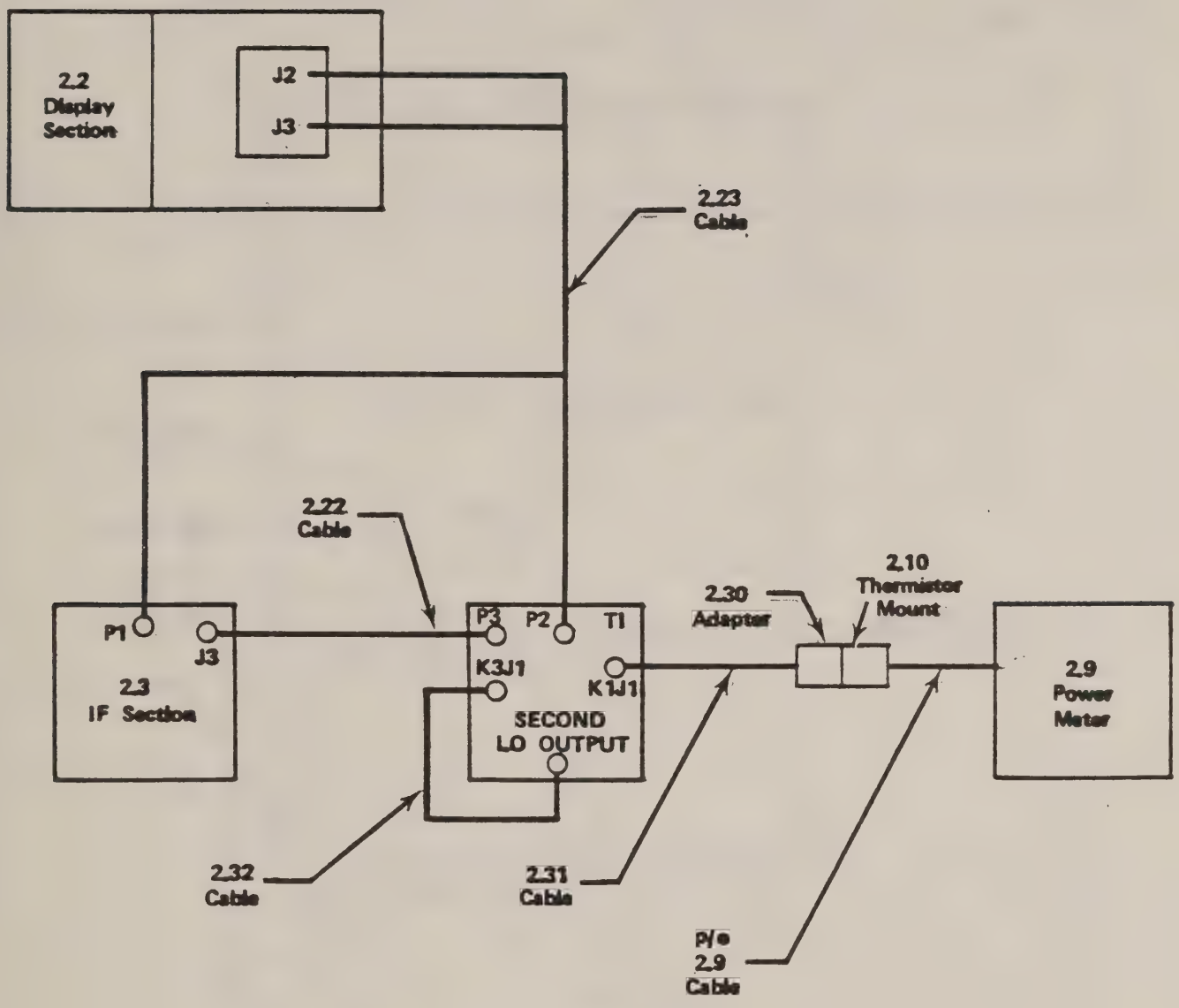

Figure 9. Filter Setup

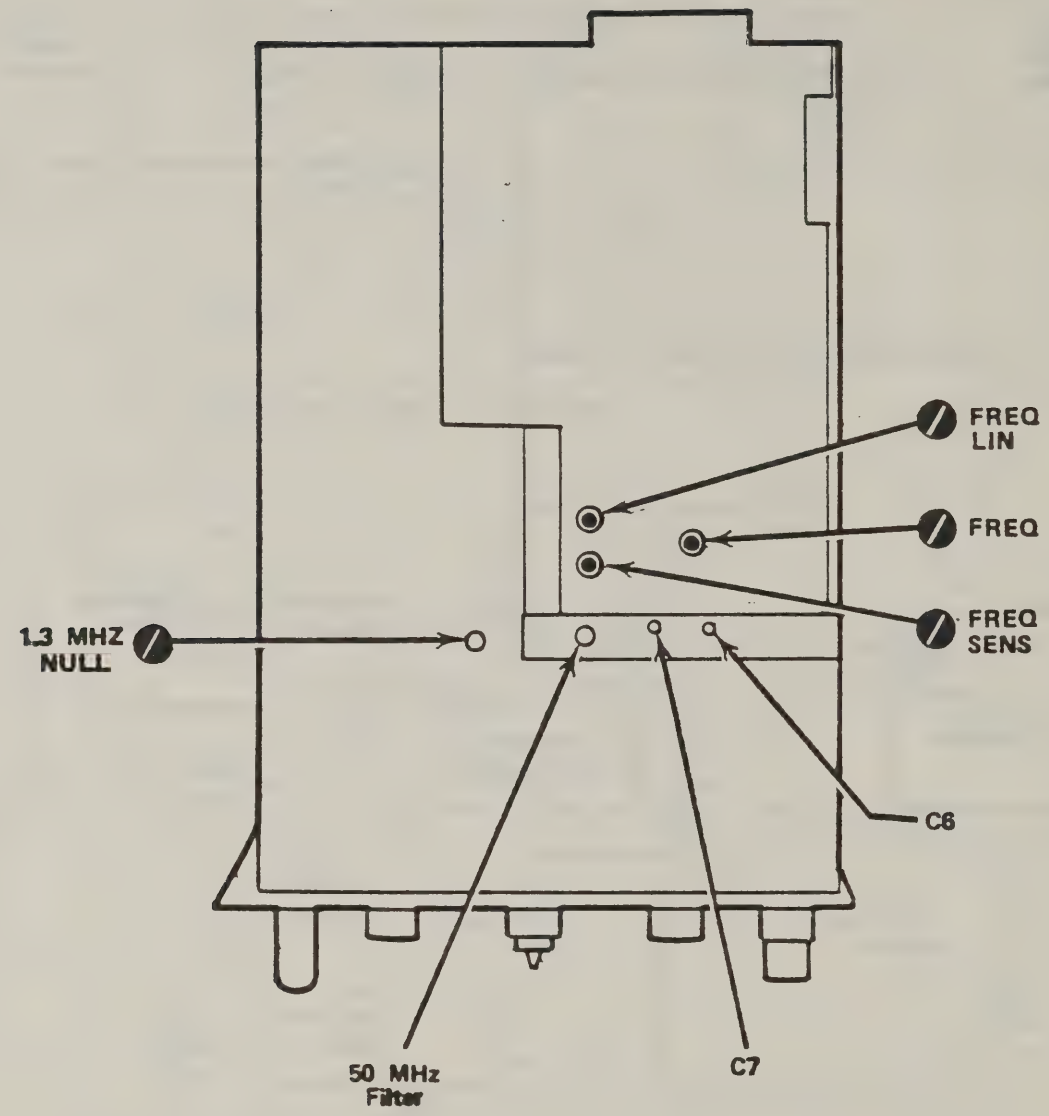

Figure 10. Adjustment Locations (Bottom View)

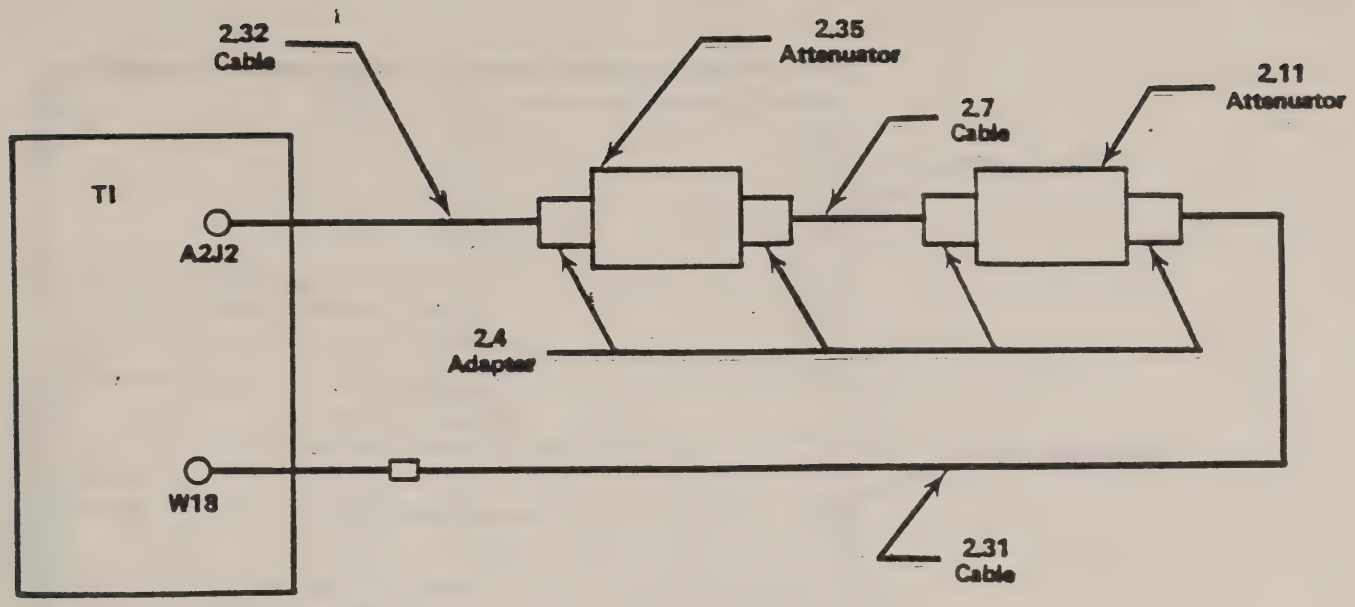

Figure 11. Attenuator Setup

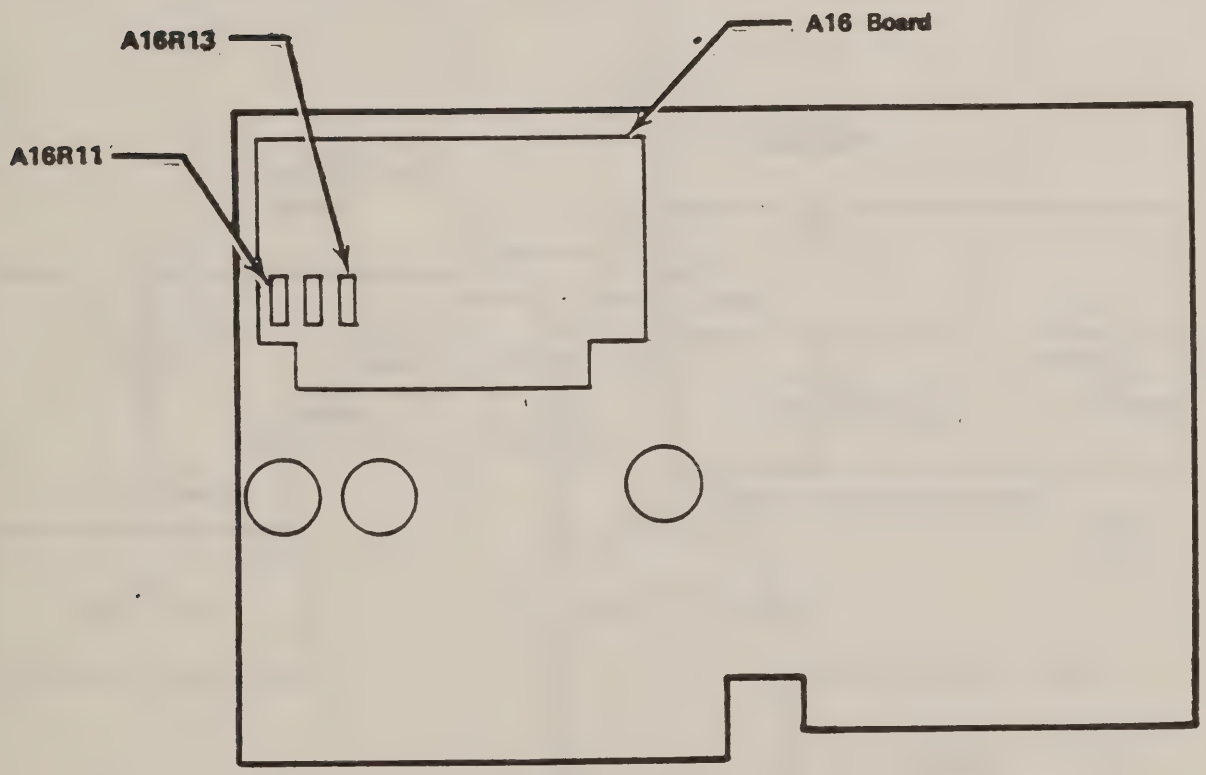

Figure 12. A16 Component Locations

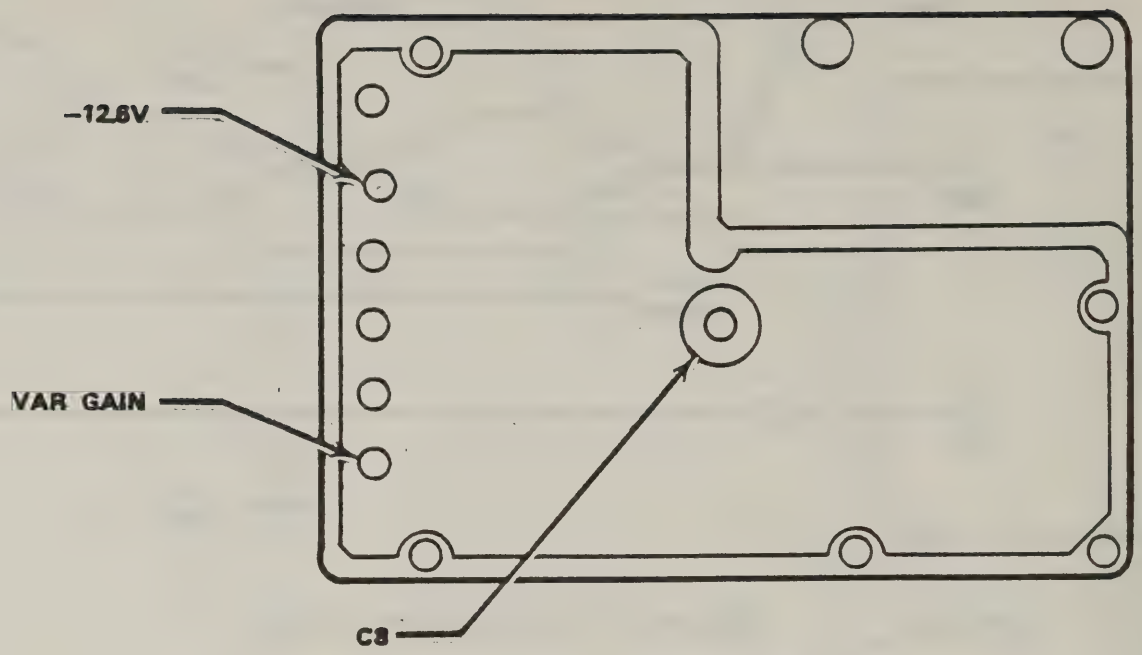

Figure 13. A2 Component Locations

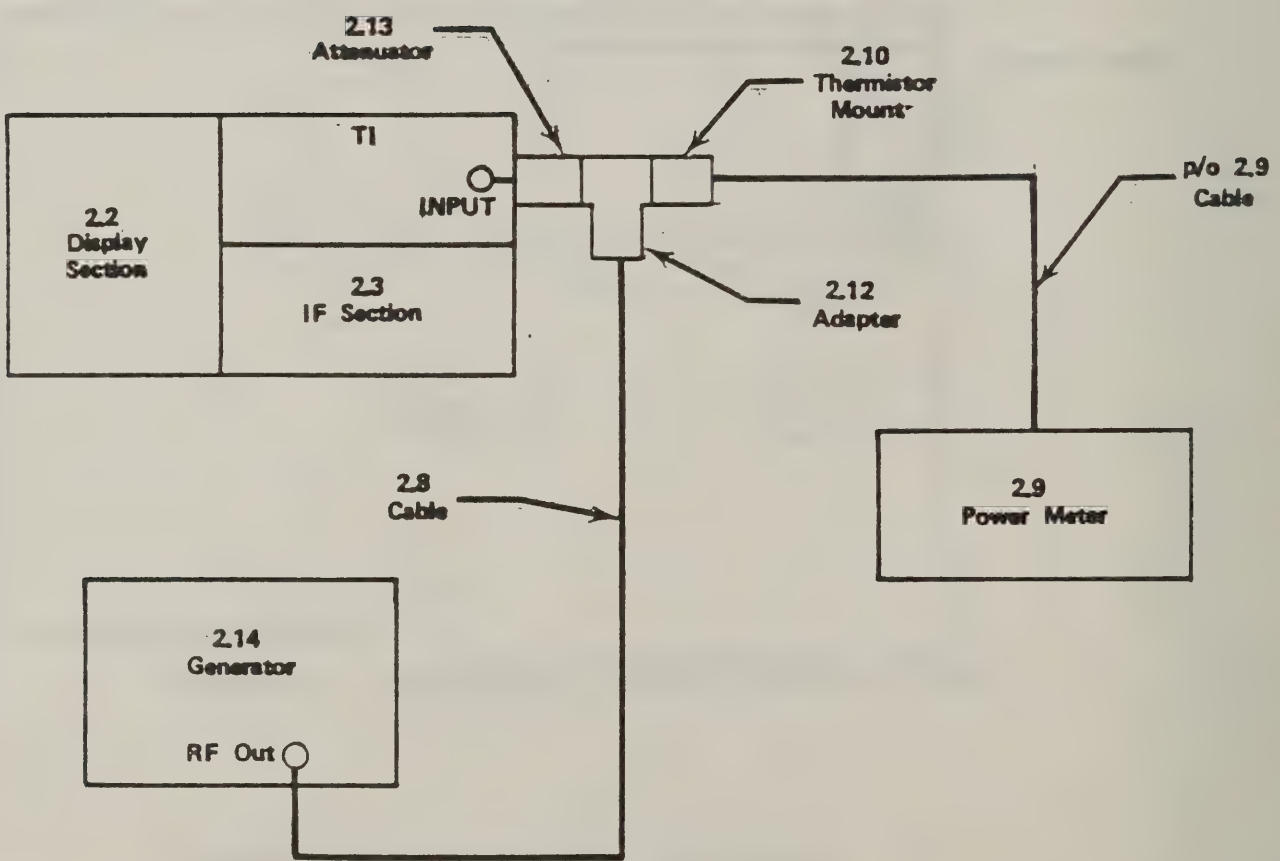

Figure 14. 50 MHz Amplifier Setup

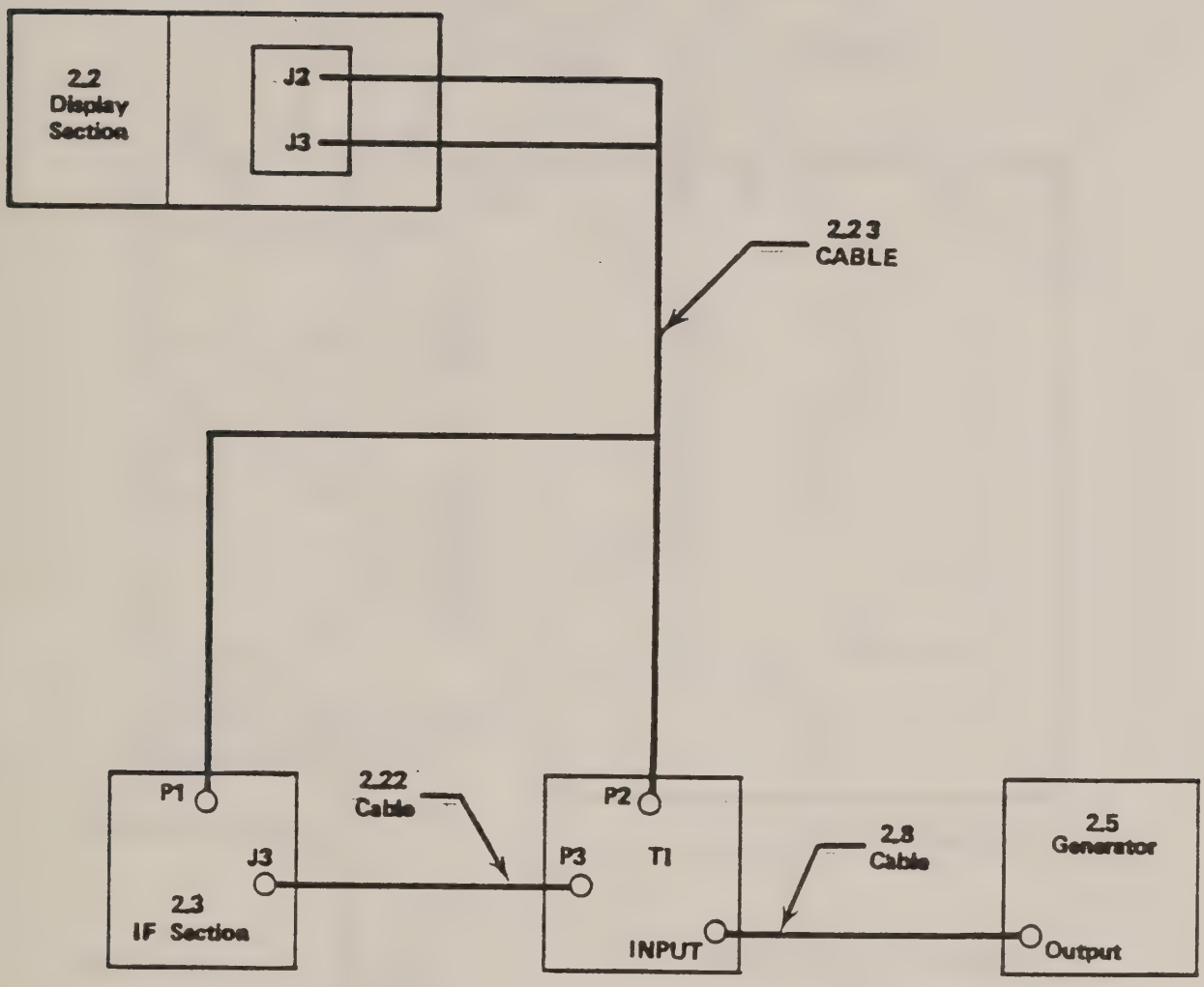

Figure 15. Tuning Stabilizer Setup

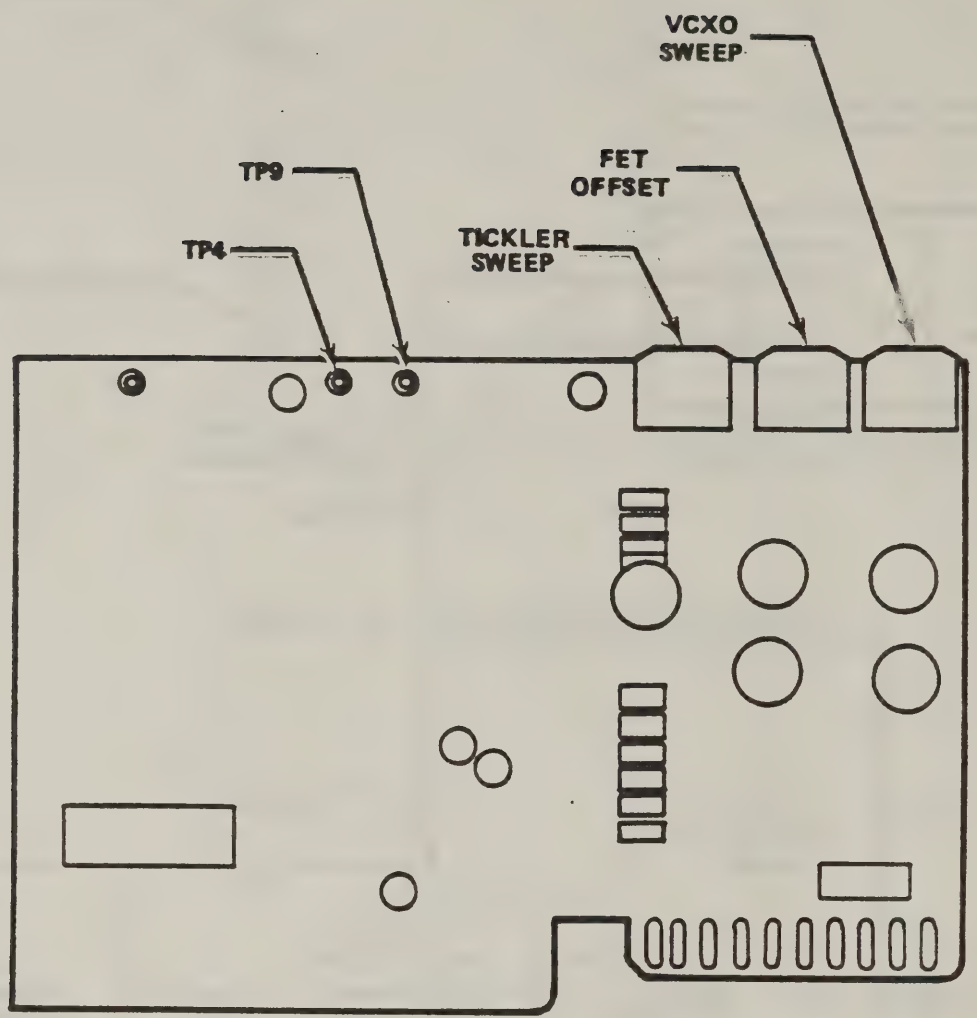

Figure 16. A5 Component Locations

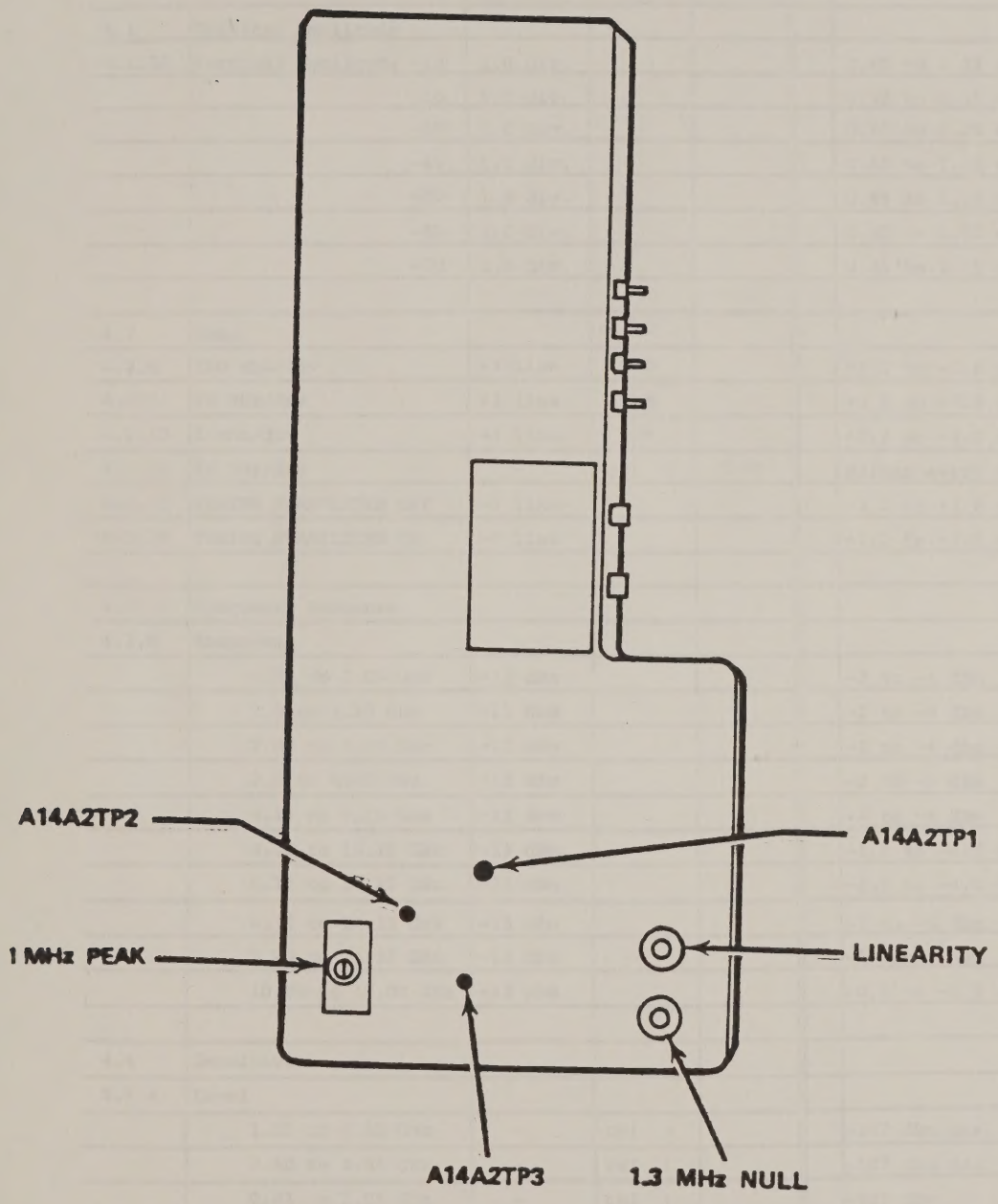

Figure 17. A14 Component Locations

Figure 11. A5 Component Locations

NAVY CALIBRATION CHECKLIST

TEST INST (S):

Hewlett Packard 8555A Spectrum Analyzer RF Section

PROC NO.	MFR	MODEL	SER NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL ✓ (6)	CALIBRATION TOLERANCES (7)
4.1	Vertical Amplitude					
4.1.12	Vertical Amplitude -10	1.0 div.				0.85 to 1.15 div.
	-20	1.0 div.				0.85 to 1.15 div.
	-30	1.0 div.				0.85 to 1.15 div.
	-40	1.0 div.				0.85 to 1.15 div.
	-50	1.0 div.				0.85 to 1.15 div.
	-60	1.0 div.				0.85 to 1.15 div.
	-70	1.0 div.				0.85 to 1.15 div.
4.2	Scan					
4.2.6	100 MHz/div	+3 line	3.0			+2.2 to +3.8 grat. line
4.2.9	10 MHz/div	+3 line	3.0			+2.2 to +3.8 grat. line
4.2.13	1 MHz/div	+3 line	3.0			+2.2 to +3.8 grat. line
4.2.20	50 kHz/div	-	ck( )	2.9		Marker every 50 kHz
4.2.22	TUNING STABILIZER OFF	+3 line				+2.2 to +3.8 grat. line
4.2.24	TUNING STABILIZER ON	+3 line				+2.2 to +3.8 grat. line
4.3	Frequency Response					
4.3.6	Response					
	0.01 to 2.05 GHz	-13 dBm				-2 to -4 dBm
	1.5 to 3.55 GHz	-13 dBm				-2 to -4 dBm
	2.07 to 6.15 GHz	-13 dBm				-2 to -4 dBm
	2.6 to 4.65 GHz	-13 dBm				-2 to -4 dBm
	4.11 to 6.15 GHz	-13 dBm				-2 to -4 dBm
	4.13 to 10.25 GHz	-13 dBm				-1.5 to -4.5 dBm
	6.17 to 10.25 GHz	-13 dBm				-1.5 to -4.5 dBm
	6.19 to 14.35 GHz	-13 dBm				-1 to -5 dBm
	8.23 to 14.35 GHz	-13 dBm				-1 to -5 dBm
	10.29 to 18.00 GHz	-13 dBm				-0.5 to -5.5 dBm
4.4	Sensitivity					
4.4.4	Level					
	1.50 to 3.55 GHz	-	ck( )			-107 dBm max.
	2.60 to 4.65 GHz	-	ck( )			-107 dBm max.
	0.01 to 2.05 GHz	-	ck( )			-105 dBm
	4.11 to 6.15 GHz	-	ck( )			-105 dBm

Add -10 to all

NAVY CALIBRATION CHECKLIST

TEST INST (S):

Hewlett Packard 8555A Spectrum Analyzer RF Section

PROC NO.	MFR	MODEL	SER NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL ✓ (6)	CALIBRATION TOLERANCES (7)
4.4.4	Level (Continued)					
	2.07 to 6.15 GHz	-	ck ( )			-98 dBm max.
	6.17 to 10.25 GHz	-	ck ( )			-95 dBm max.
	4.13 to 10.25 GHz	-	ck ( )			-93 dBm max.
	8.23 to 14.35 GHz	-	ck ( )			-90 dBm max.
	6.19 to 14.35 GHz	-	ck ( )			-85 dBm max.
	10.29 to 18.00 GHz	-	ck ( )			-80 dBm max.
4.5	Noise Sidebands					
4.5.9	Average noise	-	ck ( )			> 70 dB below carrier
4.6	Residual Frequency					
	Modulation					
4.6.16	Residual FM	-	ck ( )			Less than 100 Hz peak-to-peak
4.7	Tuning Dial Accuracy					
4.7.5	100 MHz	Centered	ck ( )	-0.7		±1.5 div. of center
4.7.6	200 MHz	"	ck ( )	-0.4		"
	400 MHz	"	ck ( )	-0.2		"
	600 MHz	"	ck ( )	-0.2		
	800 MHz	"	ck ( )	-0.1		"
	1000 MHz	"	ck ( )	0		"
	1200 MHz	"	ck ( )	+0.4		"
	1400 MHz	"	ck ( )	+0.4		"
	1600 MHz	"	ck ( )	+0.8		"
	1800 MHz	"	ck ( )	+1.0		"
	2000 MHz	"	ck ( )			"
4.8	Residual Response					
4.8.5	Response	-	ck ( )			Less than -90 dBm